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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/627,424	07/27/2000	Mamoru Uchida	1403-0203P	2636

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EXAMINER

MAKI, STEVEN D

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/627,424

Applicant(s)

UCHIDA ET AL.

Examiner

Steven D. Maki

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address.

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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1) In the response filed 8-31-04, applicant relies upon experiment #2 in the "132 declaration filed 5-28-03" to show unexpected results. With respect to experiment #2 in the "132 declaration filed 5-28-03", applicant states: "... it was incorrectly asserted on pages 9-10 of the response [filed 10-28-03] that the fiber length in the fibers in Experiment 2 is 0.3 mm.¹ In actuality the fiber length of these fibers is 3.0 mm" (page 2 of response filed 8-31-04). In view of the above noted clarification of the response filed 10-28-03, the record is now clear that the identification of the average fiber length of staple fibers as being 3.0 mm in the 132 declaration filed 5-28-03 is correct.

2) The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3) Claims 1 and 5 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for using an average length of 0.5 mm for the fibers, does not reasonably provide enablement for using an average length of 0.1 to 5 mm for the fibers. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

Paragraph 2 of the last office action dated 6-3-04 is incorporated herein by reference. As noted in the last office action, experiment #2 (using a fiber length of 3.0 mm and having a ratio of E1/E2 of 4.22) in the declaration filed 5-28-03 shows that the

¹ It is noted that page 2 of the response filed 8-31-04 contains an obvious typographical error. In particular, "the 37 CFR 1.132 declaration that was filed with the response of October 28, 2003" should be --the 37 CFR 1.132 declaration that was filed with the response of May 28, 2003--.

claimed range of $E1/E2 = 1.1$ to 4 is not enabled for the entire claimed range of 0.1 to 5.0 mm for the average length for the fibers.

In response, applicant states: "The fact that the elastic modulus ratio is dependent on the aspect ratio of the staple fibers is a fact that is evident to those of ordinary skill in the art." (page 3 of response filed 8-31-04). With respect to this statement, examiner comments that attorney arguments cannot take place of evidence. See MPEP 716.01(b), page 700-256, Rev. 2, May 2004.

Applicant also states "... in order to have an elastic modulus ratio that satisfies the equation $1.1 < E1/E2 \leq 4$, not only must one consider the average fiber length of the staple fibers, but the aspect ratio must also be considered" (emphasis added). First: In view of experiment #1 in the original disclosure (which uses an average fiber length of 0.5 mm and an average fiber diameter of 11 μm), there is no dispute that the original disclosure enables the claimed $E1/E2$ ratio for the claimed tire when using an average fiber length of 0.5 mm and an average fiber diameter of 11 μm . Second: It is acknowledged that the average fiber length of 0.5 mm and average fiber diameter of 11 μm inherently define an aspect ratio of 45 (0.5 mm / 11 μm). Third: Although claim 1 specifies average fiber diameter and average fiber length, claim 1 fails to recite what the aspect ratio should be or how the average fiber diameter and average length must be selected and matched in order to enable the claimed ratio of $E1/E2$ for the entire claimed range of 0.1 to 5 mm for the average fiber length.

4) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5) **Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '204 (JP 62-191204) in view of Japan '209 (JP 7-61209) and Japan '214 (JP 10-129214) and optionally German '792 (DE 3122792).**

Japan '204, Japan '209, Japan '214 and the optional German '792 are applied as in paragraph 3 of the last office action (paragraph 3 of the last office action is incorporated herein by reference).

Applicant argues that 103 rejection should be withdrawn because applicant has shown unexpected effects (e.g. an unexpected increase in braking performance on ice) when the elastic modulus ratio satisfies $1.1 \leq E1/E2 \leq 4$. Applicant relies upon experiment #1 in the original disclosure and experiment #2 in the 132 declaration filed 5-28-04 to demonstrate the unexpected effect. Applicant's argument is not persuasive.

The results in experiment #1 of the original disclosure are not commensurate in scope with the claims since (1) no invention example having a fiber length greater than 0.5 mm has been tested and (2) claim 1 recites an average fiber length of 0.1 to 5 mm. In other words, no unexpected results has been shown for the range of more than 0.5 mm but less than or equal to 5 mm.

The result of improved braking performance on ice for using an elastic modulus ratio of more than 1.1 is the expected result. The original disclosure describes adhesion friction, scratching friction and digging friction as not being improved

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if $E1/E2$ is less than 1.1 (page 5 of specification). Experiment #1 of the original disclosure shows that braking performance for a tire having *radially oriented* fibers is 125 whereas comparative example 3 shows braking performance for a tire having *circumferentially oriented* fibers is 105. Improving braking performance by *radially orienting* fibers so as to define a ratio $E1/E2 > 1.0$ is an expected result since Japan '204 teaches *radially orienting* fibers to obtain good skid proofing effects on snowy or icy roads.

The results of improved abrasion resistance and braking performance on ice for using an elastic modulus ratio less than 4 is the expected result. The original disclosure describes rigidity of the tread block becoming excessively high if the ratio $E1/E2$ is greater than 4.0 (specification page 5). The applied prior art motivates one of ordinary skill in the art to avoid high rigidity. Japan '209 teaches avoiding hardness above 60 to avoid braking performance degradation (paragraph 16 of machine translation). Japan '214 teaches avoiding high hardness to prevent reduced grip nature (paragraph 20 of machine translation). The following data and results are obtained from the original disclosure and the 132 declaration filed 5-28-03:

	Exp 1 (original disclosure)	Exp 1 132 dec 5-28-03	Comp Ex 4 (original disclosure)	Exp 2 132 dec 5-28-03
length of glass fiber	0.5 mm	0.3 mm	0.5 mm	3.0 mm
aspect ratio	45	27	45	272
amount of glass fiber	5	25	30	5

E1/ E2	1.42	2.48	4.15	4.22
braking performance on ice	125	115	95	92
abrasion resistance	100	93	92	99

With respect to Exp 1 (original disclosure), Exp 1 (132 dec 5-28-03) and Comp Ex 4 (original disclosure), the above results show a decrease in abrasion resistance if too much fiber (e.g. 25 parts or 30 parts) is used. Decrease in abrasion resistance by using too much fiber is an expected result since Japan '209 teaches that if more than 10 parts fiber is used, the reinforcement nature of the rubber will fall and it will have inferior to abrasion resistance (paragraph 17 of machine translation). With respect to Exp 1 (original disclosure) and Exp 2 (132 dec 5-28-03), the results show a decrease in braking performance on ice from 125 to 92 if the fiber length is too long. First: The result in experiment # 1 in the original disclosure is not commensurate in scope with the claims since none of the claims require an average fiber length of 0.5 mm and an aspect ratio of 45 (0.5 mm / 11 μ m). Second: Japan '214 teaches away from using the length 3.0 mm in Experiment #2 in the 132 declaration filed 5-28-03. More specifically, Japan '214 teaches toward a fiber length of 20 - 1000 μ m (0.02 - 1.0 mm) so that the fibers are fully radially oriented (paragraph 19 of machine translation). Improvement in fiber orientation is greatly desired by Japan '204 since Japan '204 teaches *radially orienting* the fibers to obtain good skid proofing effect on ice (braking performance on ice).

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6) **Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '204 in view of Japan '209 and Japan '214 and optionally German '792 (DE 3122792) as applied above and further in view of Japan '603 (JP 3-258603).**

Japan '603 is applied as in paragraph 4 of the last office action (paragraph 4 of the last office action is incorporated herein by reference).

Remarks

7) Applicant's arguments filed 8-31-04 have been fully considered but they are not persuasive.

WO 98/13185 is cited of interest for disclosing folding to obtain desired fiber orientation. WO 98/13185 does not describe (a) a ratio $E1/E2$ being between 1.1 and 4, (b) rubber hardness of 45-75 or (c) average fiber diameter of 1 - 100 μm .

8) **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

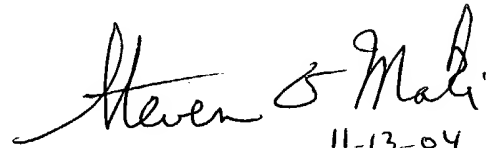
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9) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven D. Maki
November 13, 2004


11-13-04
STEVEN D. MAKI
PRIMARY EXAMINER
~~GROUP 1300~~
AU 1733